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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/674,955	09/30/2003	Terence Alan Reid	7134.US.O1	5288

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EXAMINER	
NOGUEROLA, ALEXANDER STEPHAN	
ART UNIT	**PAPER NUMBER**
1753	

DATE MAILED: 08/05/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/674,955	REID ET AL.	
	Examiner	Art Unit	
	ALEX NOGUEROLA	1753	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-21* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-21* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *30 September 2003* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *3/29/2004*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☒ Other: *IDS of 6/13/2005*.

DETAILED ACTION

Specification

1. The abstract should be 150 words or less. See MPEP 608.01(b).

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 1-10, 15-17, 20, and 21 are rejected under 35 U.S.C. 102(a) as being clearly anticipated by Hodges (WO 03/032411 A2) ("Hodges').

Addressing claim 1, Hodges discloses an electrochemical cell comprising an

insulating substrate (22), at least two conducting layers (16,18), and at least two insulating layers (26,24), wherein the at least two conducting layers are separated by at least one of the insulating layers (Figure 1).

Addressing claims 2 and 3, for the additional limitations of these claims see Figure 1.

Addressing claims 4-9, for the additional limitations of these claims see page 2:11-30. For clam 7 note that barring a contrary showing that although not used to do so the working electrodes are *capable* of being *used* to determine the presence or concentration of different analytes.

Addressing claim 10, for the additional limitation of this claim see page 13:4-8.

Addressing claims 15-17, for the additional limitations of these claims see page 11:23-30 and page 14:1-11.

Addressing claim 20, for the additional limitations of this claim let the insulating substrate be 24 and the at least two insulating layers be 22 and 26.

Addressing claim 21, for the additional limitation of this claim see Figure 1.

4. Claims 1-9, 11, 13-17, 20, 21 are rejected under 35 U.S.C. 102(b) as being clearly anticipated by the English language translation of Urban (WO 90/12314 A1) ("Urban").

Addressing claim 1, Urban discloses an electrochemical cell comprising an insulating substrate (5), at least two conducting layers (1,2,3), and at least two insulating layers (4,4'), wherein the at least two conducting layers are separated by at least one of the insulating layers (Figures 10-13).

Addressing claim 2, for the additional limitations of this claim see Figures 10-13

Addressing claim 3, for the additional limitations of this claim see Figures 11 and 13

Addressing claims 4, 8, and 9, for the additional limitations of these claims see page 14, second full paragraph (although this passage is in reference to Figures 4 and 5, the intended uses of the these electrodes appears to apply to all of the figures).

Addressing claims 5-7, for the additional limitations of these claims consider that they are intended uses, which barring a contrary showing, the electrodes in the electrochemical cell of Urban is capable of. The cells in Figures 10-13 comprise three electrodes: a working electrode (2), a counter electrode (3), and a reference electrode (1). However, the counter electrode is *capable* of being used as a second working

electrode to measure the concentration of the same or a different analyte as the other working electrode.

Addressing claim 11, for the additional limitations of this claim see Figures 10-13.

Addressing claim 13, for the additional limitations of this claim see Figures 10 and 11

Addressing claim 14, for the additional limitations of this claim see Figures 12 and 13. Note that the examiner is broadly construing "irregular shape" to include inferior a cell profile that with non-parallel walls and a non-monotonically changing spacing between them.

Addressing claims 15-17, for the additional limitations of these claims see the last paragraph on page 11.

Addressing claim 20, for the additional limitation of this claim see Figures 11 and 13. Let the insulating substrate instead be the insulating layer between electrodes 2 and 3, let the top insulating layer 4 and the bottom insulating layer 4 be the at least two insulating layers of claim 1.

Addressing claim 21, for the additional limitation of this claim see Figures 10-13.

5. Claims 1-13 and 15-21 are rejected under 35 U.S.C. 102(a) as being clearly anticipated by Hyland (WO 03/056319 A2) ("Hyland").

Addressing claim 1, Hyland discloses an electrochemical cell comprising an insulating substrate (bottom layer 7 in Figures 2-5 and substrate 21 in Figure 6), at least two conducting layers ((5,6,9,10,10') Also see page 12:30 – page13:2, which discloses up to ten electrodes), and at least two insulating layers (other layers 7 in Figures 2-5), wherein the at least two conducting layers are separated by at least one of the insulating layers (Figures 2-6).

Addressing claim 2, for the additional limitations of this claim see Figures 2-6 and again note page 12:30 – page13:2, which discloses up to ten electrodes.

Addressing claim 3, for the additional limitations of this claim see Figures 2 and 3 and again note page 12:30 – page13:2, which discloses up to ten electrodes.

Addressing claims 4 and 5, for the additional limitations of these claims see page 6:1-3 and page 12:20-25.

Addressing claims 6 and 7, for the additional limitations of these claims see page 13, first full paragraph.

Addressing claims 8 and 9, for the additional limitations of these claims see page 12:1-28.

Addressing claim 10, for the additional limitation of this claim see page 12:6-8.

Addressing claim 11, for the additional limitation of this claim see Figures 5 and 6.

Addressing claim 12, for the additional limitation of this claim see page 7, first full paragraph. Let, for example, the passageway have a depth of 50 μm, a length of 0.1 mm, and a width of 0.1 mm (square cross-section from top view). Then the volume will be 500,000 μm^3, which equals 0.0005 micro liter.

Addressing claim 13, for the additional limitation of this claim see Figures 5 and 6 and page 14, first full paragraph, which discloses a circular, or square, or rectangular cross-section from a top view.

Addressing claims 15-17, for the additional limitations of these claims see page 24:1-11.

Addressing claim 18, for the additional limitation of this claim see page 22:20-24 – page 23:5.

Addressing claim 19, for the additional limitation of this claim see page 23:10-14.

Addressing claim 20, for the additional limitation of this claim see Figure 2. Let the insulating substrate instead be the insulating layer between electrodes 6 and 9, let the insulating layer between electrodes 5 and 9 be the insulating layer of claim 1 that separates at least two conducting layers, and let the insulating layer directly above electrode 7 be the second of the at least two insulating layers of claim 1.

Addressing claim 21, for the additional limitation of this claim see Figures 2 and 3.

6. Claim 1 is rejected under 35 U.S.C. 102(a) as being clearly anticipated by Fritsch et al. (US 2003/0015422 A1) ("Fritsch").

Fritsch discloses an electrochemical cell comprising an insulating substrate (bottom layer in Figure 6), at least two conducting layers (1,3,5), and at least two insulating layers (2,4), wherein the at least two conducting layers are separated by at least one of the insulating layers (Figure 6).

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

8. The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

9. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35

10. Claims 12, 18, and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over the English language translation of Urban (WO 90/12314 A1) ("Urban") in view of Fritsch et al. (US 2003/0015422 A1) ("Fritsch").

Addressing claim 12, Urban discloses an electrochemical cell comprising an insulating substrate (5), at least two conducting layers (1,2,3), and at least two insulating layers (4,4'), wherein the at least two conducting layers are separated by at least one of the insulating layers (Figures 10-13).

Although Urban clearly discloses small dimensions for the cell (claim 15 and page 17, last paragraph, bridging to page 18), Urban does not mention a cell volume not exceeding 1 microliter.

Fritsch discloses an electrochemical cell comprising an insulating substrate and alternating layers of conductor and insulator (see the abstract and Figure 6), which also reads on Applicants' claim 1 (see the rejection under 35 U.S.C. 102(a), above). Fritsch further discloses techniques for making a cell volume down to 0.00000849056 mircoliter. See paragraph [106], using a circular cavity with a radius of 6.5 μm and a depth of 8 μm.

Barring evidence to the contrary, such as unexpected results, in light of Fritsch, to reduce the electrochemical cell volume in Urban to below 1 micro liter is just scaling down the cell for a smaller expected sample volume range.

Addressing claims 18 and 19, Urban discloses an electrochemical cell

comprising an insulating substrate (5), at least two conducting layers (1,2,3), and at least two insulating layers (4,4'), wherein the at least two conducting layers are separated by at least one of the insulating layers (Figures 10-13).

Although Urban clearly discloses small dimensions for the cell (claim 15 and page 17, last paragraph, bridging to page 18), Urban does not mention the claimed thickness ranges.

Fritsch discloses an electrochemical cell comprising an insulating substrate and alternating layers of conductor and insulator (see the abstract and Figure 6), which also reads on Applicants' claim 1 (see the rejection under 35 U.S.C. 102(a), above). Fritsch further discloses techniques an embodiment having a cavity with a depth of 8 μm through two conducting layers and two insulating layers. Thus, Fritsch discloses conducting layers and insulating layers that do not exceed 100 micrometers. See paragraph [0106].

Barring evidence to the contrary, such as unexpected results, in light of Fritsch, to have a conducing layer or an insulating layer within the claimed respective ranges is just scaling down the cell for a smaller expected sample volume range.

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to ALEX NOGUEROLA whose telephone number is (571) 272-1343. The examiner can normally be reached on M-F 8:30 - 5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, NAM NGUYEN can be reached on (571) 272-1342. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Alex Noguerola
Primary Examiner
AU 1753
August 2, 2005